



# Cavanaugh Macdonald

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*The experience and dedication you deserve*

December 12, 2014

Mr. Gary L. Harbin  
Executive Secretary  
Teachers' Retirement System of the  
State of Kentucky  
479 Versailles Road  
Frankfort, KY 40601

Dear Gary:

Enclosed are 25 bound copies and one unbound copy of the "Teachers' Retirement System of the State of Kentucky Report of the Actuary on the Annual Valuation of the Retiree Medical and Life Insurance Plans Prepared as of June 30, 2014".

Sincerely yours,

Eric Gary, FSA, FCA, MAAA  
Chief Health Actuary

Alisa Bennett, FSA, EA, FCA, MAAA  
Principal and Consulting Actuary

EG/AB:lb

Enclosure

S:\Kentucky Teachers\OPEB\Valuation\2014\Report & Other Deliverables\KTRS OPEB Report 6-30-2014.docx

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**Teachers' Retirement System  
of the State of Kentucky  
Report of the Actuary on the  
Annual Valuation of the  
Retiree Medical and Life  
Insurance Plans**

**Prepared as of June 30, 2014**





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December 12, 2014

Board of Trustees  
Teachers' Retirement System of the  
State of Kentucky  
479 Versailles Road  
Frankfort, KY 40601-3800

Members of the Board:

Governmental Accounting Standards Board Statements No. 43 and 45 require the Teachers' Retirement System of the State of Kentucky (the System) to conduct actuarial valuations of the System's retiree medical and other post-employment benefit plans. This report covers the Retiree Medical Plan funded by the Medical Insurance Fund (MIF) and OPEB liabilities related to the Life Insurance Plan funded by the Life Insurance Fund (LIF). Cavanaugh Macdonald Consulting, LLC (CMC) has submitted the results of the annual actuarial valuation prepared as of June 30, 2014. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

The valuation indicates a total annual required contribution of 6.00% of active member payroll for the MIF payable for the fiscal year ending June 30, 2015 is required to support the benefits of the Kentucky Employees' Health Plan (KEHP) and the Medicare Eligible Health Plan (MEHP). Of this amount, 2.27% of payroll is estimated to be paid by University members and 3.00% of payroll is estimated to be paid by all other members, leaving 3.73% and 3.00% respectively, as the remaining annual required contribution. This annual required contribution reflects the actuarial value of assets of the MIF and an 8.00% discount rate for valuing liabilities.

The initial per capita costs of health care and the rates of health care inflation used to project the per capita health care costs have been revised since the previous valuation to reflect recent experience.

The Life Insurance Plan valuation indicates a total annual required contribution of 0.03% of active member payroll payable for the fiscal year ending June 30, 2017 is required to support the benefits of the LIF. This annual required contribution reflects the actuarial value of assets of the LIF and a 7.50% discount rate for valuing liabilities.

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Board of Trustees  
December 12, 2014  
Page 2

The promised benefits of the Retiree Medical and Life Insurance Plans are included in the actuarially calculated contribution rates which are developed using the entry age normal actuarial cost method. Five-year market related value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular annual contributions as a level percentage of payroll within a 30-year period, on the assumption that payroll will increase by 4.00% annually. The assumptions recommended by the actuary and adopted by the Board are in aggregate reasonably related to the experience under the Retiree Medical and Life Insurance Plans and to reasonable expectations of anticipated experience under the Retiree Medical and Life Insurance Plans and meet the parameters for the disclosures under GASB 43 and 45.

CMC has prepared the trend information shown in the Schedule of Funding Progress in the Financial Section of the Annual Report and Section VII shown in the Actuarial Section of the Annual Report.

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Retiree Medical and Life Insurance Plans and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the plans.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

In our opinion, if the State contributions to the Medical Insurance Fund continue to increase to the planned levels, the Retiree Medical Plan will begin to operate in an actuarially sound basis. Assuming that required contributions to the Medical Insurance Fund are made by the employer from year to year in the future at the levels required on the basis of the successive actuarial valuations, the actuarial soundness of the Medical Insurance Fund to provide the benefits called for under the Retiree Medical Plan will improve.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Eric Gary'.

Eric Gary, FSA, FCA, MAAA  
Chief Health Actuary

A handwritten signature in blue ink, appearing to read 'Alisa Bennett'.

Alisa Bennett, FSA, EA, FCA, MAAA  
Principal and Consulting Actuary

EG/AB:lb



## TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Summary of Principal Results	1
II	Membership Data	5
III	Assets	6
IV	Comments on Valuation	6
V	Derivation of Experience Gains and Losses	8
VI	Contributions Payable under the Plans	9
VII	Comments on Level of Funding	11
VIII	Accounting Information	12
 <u>Schedule</u>		
A	Results of the Valuation and Solvency Test	17
B	Development of the Actuarial Value of Assets	19
C	Summary of Receipts and Disbursements	21
D	Statement of Actuarial Assumptions and Methods	23
E	Summary of Main Plan Provisions as Interpreted for Valuation Purposes	29
F	Tables of Member Data	34



**TEACHERS' RETIREMENT SYSTEM  
OF THE STATE OF KENTUCKY  
REPORT OF THE ACTUARY ON THE ANNUAL VALUATION  
OF THE RETIREE MEDICAL AND LIFE INSURANCE PLANS  
PREPARED AS OF JUNE 30, 2014**

**SECTION I - SUMMARY OF PRINCIPAL RESULTS**

1. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below:

**MEDICAL INSURANCE FUND**  
(Dollar amounts in \$1,000's)

Valuation Date	June 30, 2014	June 30, 2013
Number of active members	73,407	74,831
Annual salaries	\$3,486,327	\$3,480,066
Number of deferred vested members	5,188	4,910
Number of annuitants in medical plans	37,275	36,777
Number of spouses and beneficiaries in medical plans*	<u>7,031</u>	<u>7,053</u>
Total	44,306	43,830
Assets:		
Market value	\$ 535,995	\$ 413,666
Actuarial value	\$ 508,913	\$ 412,185
Unfunded actuarial accrued liability	\$2,685,776	\$3,108,888
Amortization period (years)	30	30
Discount rate	8.00%	8.00%

*\*Spouses of post-65 retirees, as well as surviving spouses of deceased retirees on or after July 1, 2002, pay 100% of the full contribution. 100% of the full contribution for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State.*



**MEDICAL INSURANCE FUND CONTRIBUTION RATES FOR UNIVERSITY MEMBERS**

Valuation Date	June 30, 2014		June 30, 2013	
Contribution for fiscal year ending:	June 30, 2015		June 30, 2014	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Normal	1.79%	1.79%	1.92%	1.92%
Accrued liability	<u>4.21</u>	<u>4.21</u>	<u>4.88</u>	<u>4.88</u>
Total	6.00%	6.00%	6.80%	6.80%
Member	2.27%	2.27%	1.75%	1.75%
Employer (ARC)	2.27	1.27	1.75	0.75
State (ARC)	<u>1.46</u>	<u>2.46</u>	<u>3.30</u>	<u>4.30</u>
Total	6.00%	6.00%	6.80%	6.80%

**MEDICAL INSURANCE FUND CONTRIBUTION RATES FOR SCHOOL DISTRICT EMPLOYEES (NON-FEDERAL)**

Valuation Date	June 30, 2014		June 30, 2013	
Contribution for fiscal year ending:	June 30, 2015		June 30, 2014	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Normal	1.79%	1.79%	1.92%	1.92%
Accrued liability	<u>4.21</u>	<u>4.21</u>	<u>4.88</u>	<u>4.88</u>
Total	6.00%	6.00%	6.80%	6.80%
Member	3.00%	3.00%	2.25%	2.25%
Employer (ARC)	2.25	2.25	1.50	1.50
State (ARC)	<u>0.75</u>	<u>0.75</u>	<u>3.05</u>	<u>3.05</u>
Total	6.00%	6.00%	6.80%	6.80%



**MEDICAL INSURANCE FUND CONTRIBUTION RATES FOR OTHER EMPLOYEES**

Valuation Date	June 30, 2014		June 30, 2013	
Contribution for fiscal year ending:	June 30, 2015		June 30, 2014	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Normal	1.79%	1.79%	1.92%	1.92%
Accrued liability	<u>4.21</u>	<u>4.21</u>	<u>4.88</u>	<u>4.88</u>
Total	6.00%	6.00%	6.80%	6.80%
Member	3.00%	3.00%	2.25%	2.25%
Employer (ARC)	3.00	2.00	2.25	1.25
State (ARC)	<u>0.00</u>	<u>1.00</u>	<u>2.30</u>	<u>3.30</u>
Total	6.00%	6.00%	6.80%	6.80%

**LIFE INSURANCE FUND**  
(Dollar amounts in \$1,000's)

Valuation Date	June 30, 2014	June 30, 2013
Number of active members	73,407	74,831
Annual salaries	\$3,486,327	\$3,480,066
Number of vested former members	4,113	3,839
Number retirees in Life Insurance Plan	44,855	43,845
Assets:		
Market value	\$90,823	\$89,957
Actuarial value	\$96,130	\$94,863
Unfunded actuarial accrued liability*	\$ 1,224	\$ (538)
Amortization period (years)	30	30
Discount rate	7.50%	7.50%
Contribution for fiscal year ending:	June 30, 2017	June 30, 2016
Normal	0.03%	0.03%
Accrued liability	<u>0.00</u>	<u>0.00</u>
Total	0.03%	0.03%

\* Includes liability for death in active service. This amount could be segregated from the OPEB liability and assets could be split for active and post-employment purposes. However, since this could be administratively burdensome and since death in active service liabilities can be considered de minimis, it is acceptable to consider the entire liability an OPEB liability under GASB 43 and 45.



2. The valuation indicates combined member, employer, and State contributions of 6.00% of active member payroll would be sufficient to support the current benefits of the Retiree Medical Plan and State contributions of 0.03% of active member payroll would be sufficient to support the current benefits of the Life Insurance Plan. Comments on the valuation results as of June 30, 2014 are given in Section IV and further discussion of the contribution levels is set out in Sections VI and VII.
3. Since the previous valuation, the initial per capita costs of health care and the rates of health care inflation used to project the per capita health care costs have been revised to reflect recent experience.
4. There were no changes in benefit provisions since the last valuation. However, the health insurance plan designs have changed for eligible retirees. The changes are summarized below.
  - The Kentucky Employees' Health Plan (KEHP), the self-insured plan for active employees and non-Medicare eligible retirees administered by the Commonwealth of Kentucky, has made the following changes for plan year 2015:
    - The new medical plan administrator is Anthem Blue Cross Blue Shield.
    - The new prescription drug plan administrator is CVS/caremark and changes were made to the prescription drug formulary.
    - Out-of-pocket maximums are now tracked separately for medical and prescription drug coverage. Prescription drug coverage is now capped.
    - The LivingWell PPO plan has lowered co-pays for mental health and allergy injections.
  - The MEHP, the plan for Medicare eligible retirees administered by KTRS, has made the following changes for plan year 2015:
    - The new medical plan administrator is UnitedHealthcare (UHC), and a number of enhancements were made to the medical plan.
    - The prescription drug plan is now self-funded.



**SECTION II - MEMBERSHIP DATA**

- Data regarding the membership of the Retiree Medical and Life Insurance Plans for use as a basis of the valuation were furnished by the System's office. The following tables summarize the membership of the System as of June 30, 2014, upon which the valuation was based. Detailed tabulations of the data are given in Schedule F.

**ACTIVE MEMBERS AS OF JUNE 30, 2014**

Group	Number	Annual Salaries (\$1,000's)
University Full Time hired before 7/1/2008	2,235	\$ 158,132
University Full Time hired after 7/1/2008	1,172	57,918
University Part Time hired before 7/1/2008	31	1,452
University Part Time hired after 7/1/2008	66	1,667
Non-University Full Time hired before 7/1/2008	43,827	2,653,054
Non-University Full Time hired after 7/1/2008	12,562	537,383
Non-University Part Time hired before 7/1/2008	6,911	51,444
Non-University Part Time hired after 7/1/2008	<u>6,603</u>	<u>25,277</u>
Total	73,407	\$3,486,327

*The table reflects the active membership for whom complete valuation data was submitted. The results of the valuation were adjusted to take account of inactive members and members for whom incomplete data was submitted.*

- The following tables show the number of retired members and their beneficiaries receiving health care as of the valuation date as well as average ages.

**RETIREES RECEIVING HEALTH BENEFITS AS OF JUNE 30, 2014**

	Under 65	Over 65	Total
Number	13,163	24,112	37,275
Average Age	60.4	73.9	69.1

**SPOUSES RECEIVING HEALTH BENEFITS AS OF JUNE 30, 2014**

	Under 65	Over 65	Total
Number	2,990	4,041	7,031
Average Age	59.2	75.3	68.5

- The Retiree Medical Plan valuation also includes 5,188 deferred vested members eligible for health care at age 60.



### **SECTION III - ASSETS**

1. As of June 30, 2014 the market value of MIF assets held by the Retiree Medical Plan amounted to \$535,995,450 and the market value of LIF assets held by the Life Insurance Plan amounted to \$90,822,970.
2. The five-year market related value of MIF assets used for valuation purposes as of June 30, 2014 was \$508,913,385 and the five-year market related value of LIF assets used for valuation purposes as of June 30, 2014 was \$96,130,349. Schedule B shows the development of the actuarial value of assets as of June 30, 2014.
3. Schedule C shows the receipts and disbursements for the year preceding the valuation date and a reconciliation of the asset balances for the MIF and the LIF.

### **SECTION IV - COMMENTS ON VALUATION**

1. Schedule A of this report outlines the results of the actuarial valuation. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule D.
2. The valuation shows the Retiree Medical Plan has an actuarial accrued liability of \$1,422,833,776 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of deferred vested members amounts to \$24,300,513. The liability on account of benefits payable to retirees and covered spouses amounts to \$1,747,554,616. The total actuarial accrued liability of the Retiree Medical Plan amounts to \$3,194,688,905. Against these liabilities, the Retiree Medical Plan has present assets for valuation purposes of \$508,913,385. When this amount is deducted from the actuarial accrued liability of \$3,194,688,905, there remains \$2,685,775,520 as the unfunded actuarial accrued liability for the Retiree Medical Plan.
3. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for the Retiree Medical Plan is determined to be \$62,262,315, or 1.79% of payroll.



4. The valuation shows that the Life Insurance Plan has an actuarial accrued liability of \$16,330,423 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of deferred vested members amounts to \$2,034,372. The liability on account of benefits payable to retirees amounts to \$78,989,251. The total actuarial accrued liability of the Life Insurance Plan amounts to \$97,354,046. This amount includes liability for death in active service. The liability for death in active service could be segregated from the OPEB liability and assets could be split for active and post-employment purposes. As this could be administratively burdensome and, as death in active service liabilities can be considered de minimis, it is acceptable to consider the entire liability an OPEB liability under GASB 43 and 45. Against these liabilities, the Life Insurance Plan has present assets for valuation purposes of \$96,130,349. When this amount is deducted from the actuarial accrued liability of \$97,354,046, there remains \$1,223,697 as the unfunded actuarial accrued liability for the life insurance plan.
5. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for the life insurance plan is determined to be \$1,078,937, or 0.03% of payroll.



**SECTION V – DERIVATION OF EXPERIENCE GAINS AND LOSSES**

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain (loss) for the year ended June 30, 2014 is shown below (\$1,000's).

<b>Experience Gain/(Loss) of the:</b>		<b>Medical Insurance Fund</b>	<b>Life Insurance Fund</b>
(1)	UAAL* as of 6/30/2013	\$3,108,888	\$ (538)
(2)	Normal cost from last valuation	66,891	1,052
(3)	Expected employer contributions	<u>236,800</u>	<u>1,024</u>
(4)	Interest accrual: [(1) + (2) - (3)] x interest**	235,118	(38)
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	3,174,097	(548)
(6)	Change due to plan amendments	0	0
(7)	Change due to new actuarial assumptions	0	0
(8)	Change due to claims experience	<u>(533,866)</u>	<u>0</u>
(9)	Expected UAAL after changes: (5) + (6) + (7) + (8)	\$2,640,231	\$ (548)
(10)	Actual UAAL as of 6/30/2014	\$2,685,776	\$1,224
(11)	Total gain/(loss): (9) - (10)	(45,545)	(1,772)
(a)	Contribution shortfall and investment loss	<u>409</u>	<u>3,254</u>
(b)	Experience gain/(loss) (11) - (11a)	\$ (45,954)	(\$5,026)
(12)	Accrued liabilities as of 6/30/2013	\$3,521,073	\$94,325
(13)	Experience gain/(loss) as percent of actuarial accrued liabilities at start of year (11b) / (12)	(1.3%)	(5.3%)

\* *Unfunded Actuarial Accrued Liability*

\*\* *Interest is 8.0% for the Medical Insurance Fund and 7.5% for the Life Insurance Fund*



**SECTION VI – CONTRIBUTIONS PAYABLE UNDER THE PLANS**

- Sections 161.420 and 161.550 of the Kentucky Revised Statutes provide the amounts employers and the State are required to contribute to the Medical Insurance Fund. These contribution amounts vary by fiscal year, date of membership, and employee type.

<b>Employer Percentage of Payroll Contribution Made to Medical Insurance Fund</b>						
<b>Fiscal Year Ending</b>	<b>University Employees</b>		<b>School District Employees (Non-Federal)*</b>		<b>Other Employees</b>	
	<b>Hired Before 7/1/2008</b>	<b>Hired On or After 7/1/2008</b>	<b>Hired Before 7/1/2008</b>	<b>Hired On or After 7/1/2008</b>	<b>Hired Before 7/1/2008</b>	<b>Hired On or After 7/1/2008</b>
2015	2.270	1.270	2.250	2.250	3.000	2.000
2016 and Later	2.775	1.775	3.000	3.000	3.750	2.750

*\*In addition to the amounts contributed by School Districts on behalf of Non-Federal employees, the State contributes 0.75%.*

For the fiscal year ending June 30, 2015, member contributions will be 2.27% for University employees and 3.00% for all other members. CMC recommends employer and State contributions of the required amount of 3.73% of payroll for University employees and 3.00% of payroll for all other members. The State is scheduled to contribute 0.03% of salary to the Life Insurance Fund for the fiscal year ending June 30, 2016. CMC’s valuation indicates a contribution of 0.03% for the fiscal year ending June 30, 2017 is required to sufficiently support the benefits of the life insurance plan.



**REQUIRED CONTRIBUTION RATES**

<b>Medical Insurance Fund For Fiscal Year Ending June 30, 2015</b>						
Normal	1.79%					
Accrued Liability	<u>4.21</u>					
Total	6.00%					
	<b>University Employees</b>		<b>School District Employees (Non-Federal)</b>		<b>Other Employees</b>	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Member	2.27%	2.27%	3.00%	3.00%	3.00%	3.00%
Employer (ARC)	2.27	1.27	2.25	2.25	3.00	2.00
State (ARC)	<u>1.46</u>	<u>2.46</u>	<u>0.75</u>	<u>0.75</u>	<u>0.00</u>	<u>1.00</u>
Total	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%

<b>Life Insurance Fund For Fiscal Year Ending June 30, 2017</b>	
Normal	0.03%
Accrued Liability	<u>0.00</u>
Total	0.03%
Member	0.00%
State (ARC)	<u>0.03</u>
Total	0.03%

- The valuation indicates that a total normal contribution of 1.79% of payroll is required to meet the cost of benefits currently accruing under the Retiree Medical Plan and 0.03% of payroll is required to meet the cost of benefits currently accruing under the Life Insurance Plan. The difference between the total contribution and the normal contribution remains to be applied toward the liquidation of the unfunded actuarial accrued liability. This accrued liability payment is 4.21% of payroll for the Retiree Medical Plan and 0.00% of payroll for the Life Insurance Plan.
- The unfunded actuarial accrued liability amounts to \$2,685,775,520 for the Retiree Medical Plan and \$1,223,697 for the Life Insurance Plan as of the valuation date. An accrued liability contribution of 4.21% of payroll for the Retiree Medical Plan and 0.00% of payroll for the Life Insurance Plan is sufficient to amortize the unfunded actuarial accrued liabilities over a 30-year period, based on the assumption that the payroll will increase by 4.00% annually.



## **SECTION VII - COMMENTS ON LEVEL OF FUNDING**

1. The System's monthly contribution for retirees who opt into the Retiree Medical Plan is based upon date of hire, date of attaining age 65, and years of service at retirement. Additionally, beneficiary contributions may vary by date of hire, date of attaining age 65, years of service at retirement, plan election, Medicare eligibility, and tobacco use. Beneficiary contributions for dependents are targeted to be 100% of the cost of expected claims for spouses age 65 and older. Historically, this target has been achieved. 100% of the full cost for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State. Current employer and State contributions have been determined to be insufficient to fund the cost of the benefits to be provided. Benefits for university, school district (non-Federal), and other members are identical, although active employee contributions collected from university, school district (non-Federal), and other members differ. A listing of active member Retiree Medical Plan contributions by fiscal year, date of membership, and employer type is provided in Schedule E.
2. This valuation provides the contributions required to fund the Retiree Medical Plan in an actuarially sound manner and to ensure the future solvency of the Medical Insurance Fund. For University employees a member contribution of 2.27% of payroll together with employer and State contributions of 3.73% of payroll are required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 30 years. For the remaining membership, a member contribution of 3.00% of payroll together with employer and State contributions of 3.00% of payroll is required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 30 years.



**SECTION VIII - ACCOUNTING INFORMATION**

1. Governmental Accounting Standards Board Statements 43 and 45 set forth certain items of required supplementary information to be disclosed in the financial statements of the Retiree Medical and Life Insurance Plans and the employer.

<b>NUMBER OF ACTIVE AND RETIRED MEMBERS IN RETIREE MEDICAL PLAN AS OF JUNE 30, 2014</b>	
<b>GROUP</b>	<b>NUMBER</b>
Retirees currently receiving health benefits	37,275
Spouses of retirees currently receiving health benefits	7,031
Terminated employees entitled to benefits but not yet receiving benefits	5,188
Active plan members	<u>73,407</u>
Total	122,901

<b>NUMBER OF ACTIVE AND RETIRED MEMBERS IN LIFE INSURANCE PLAN AS OF JUNE 30, 2014</b>	
<b>GROUP</b>	<b>NUMBER</b>
Retirees	44,855
Terminated employees	4,113
Active plan members	<u>73,407</u>
Total	122,375



**SCHEDULE OF FUNDING PROGRESS**  
**Medical Insurance Fund**  
(Dollar amounts in \$1,000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) <sup>1</sup> (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2009 <sup>2</sup>	\$229,103	\$6,454,733	\$6,225,630	3.5%	\$3,253,077	191.4%
6/30/2010 <sup>3</sup>	241,224	3,206,806	2,965,582	7.5	3,321,614	89.3
6/30/2011 <sup>4</sup>	294,819	3,423,149	3,128,330	8.6	3,451,756	90.6
6/30/2012	338,746	3,594,540	3,255,794	9.4	3,479,567	93.6
6/30/2013	412,185	3,521,073	3,108,888	11.7	3,480,066	89.3
6/30/2014	508,913	3,194,689	2,685,776	15.9	3,486,327	77.0

<sup>1</sup>Actuarial cost method of Projected Unit Credit prior to 6/30/2011 and Entry Age Normal 6/30/2011 and after.

<sup>2</sup>Reflects change in participation assumptions and plan design.

<sup>3</sup>Reflects change in discount rate to 8.0%, change in plan design and updating medical trend.

<sup>4</sup>Reflects change in decrement assumptions and updating medical trend.

**SCHEDULE OF FUNDING PROGRESS**  
**Life Insurance Fund**  
(Dollar amounts in \$1,000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) <sup>1</sup> (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2009	\$84,703	\$90,334	\$5,631	93.8%	\$3,253,077	0.17%
6/30/2010	87,905	92,091	4,186	95.5	3,321,614	0.13
6/30/2011	88,527	88,088	(439)	100.5	3,451,756	(0.01)
6/30/2012	92,241	91,398	(843)	100.9	3,479,567	(0.02)
6/30/2013	94,863	94,325	(538)	100.6	3,480,066	(0.02)
6/30/2014	96,130	97,354	1,224	98.7	3,486,327	0.04

<sup>1</sup>Actuarial cost method of Projected Unit Credit prior to 6/30/2011 and Entry Age Normal 6/30/2011 and after.



2. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2014. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2014	
Actuarial Cost Method	Entry Age	
Amortization Method	Level Percent of Pay, Open	
Remaining Amortization Period	30 Years	
Asset Valuation Method	Market Value of Assets	
Actuarial Assumptions:		
Investment Rate of Return*	8.00% Retiree Medical Plan	
	7.50% Life Insurance Plan	
Medical Trend Assumption	Pre-Medicare**	Medicare
Fiscal Year Ending 6/30/2015	7.75%	5.75%
Fiscal Year Ending 6/30/2016	6.75%	5.50%
Ultimate Trend Rate	5.00%	5.00%
Year of Ultimate Trend Rate	2020	2018

\* Includes price inflation at 3.50%.

\*\*Alternate trend rates were used for Medicare Part B premiums and are disclosed in Schedule D.

**SCHEDULE OF EMPLOYER CONTRIBUTIONS  
Medical Insurance Fund**

Fiscal Year Ending Date	Annual Required Contribution (ARC) (a)	Actual Employer Contribution (b)	RDS Contribution (c)	Total Contribution (b) + (c)	Percentage of ARC Contributed [(b) + (c)] / (a)
6/30/2009	\$467,312,904	\$164,480,119	\$13,611,748	\$178,091,867	38.1%
6/30/2010	457,054,117	158,765,496	14,614,285	173,379,781	37.9
6/30/2011	477,723,070	188,453,929	280,585	188,734,514	39.5
6/30/2012	470,217,067	177,450,206	297,639	177,747,845	37.8
6/30/2013	186,725,823	166,611,420	0	166,611,420	89.2
6/30/2014	159,583,400	162,568,395	0	162,568,395	101.9

**SCHEDULE OF EMPLOYER CONTRIBUTIONS  
Life Insurance Fund**

Fiscal Year Ending Date	Annual Required Contribution (ARC) (a)	Actual Employer Contribution (b)	Percentage of ARC Contributed (b) / (a)
6/30/2009	\$1,498,076	\$5,455,473	364.2%
6/30/2010	1,992,969	1,966,826	98.7
6/30/2011	1,725,878	1,668,822	96.7
6/30/2012	1,732,831	1,684,711	97.2
6/30/2013	1,739,908	1,680,495	96.6
6/30/2014	1,044,959	1,006,091	96.3



3. Following is the calculation of the Annual OPEB Cost (AOC) and the Net OPEB Obligation (NOO) for the fiscal year ending June 30, 2014. As the Retiree Medical and Life Insurance Plans are cost-sharing multiple-employer plans, GASB Statement 45 does not require the participating employers to disclose this information.

**Annual OPEB Cost and Net OPEB Obligation**

**for the Medical Insurance Fund for Fiscal Year Ending June 30, 2014**

(a) Employer Annual Required Contribution	\$ 159,583,400
(b) Interest on Net OPEB Obligation	117,574,804
(c) Adjustment to Annual Required Contribution	<u>80,322,070</u>
(d) Annual OPEB Cost: (a) + (b) – (c)	\$ 196,836,134
(e) Employer contributions for Fiscal Year 2014	<u>162,568,395</u>
(f) Increase in Net OPEB Obligation: (d) – (e)	\$ 34,267,739
(g) Net OPEB Obligation at beginning of Fiscal Year	<u>1,469,685,047</u>
(h) Net OPEB Obligation at end of Fiscal Year: (f) + (g)	\$1,503,952,786

**TREND INFORMATION FOR THE MEDICAL INSURANCE FUND**

Fiscal Year Ending	Annual OPEB Cost (AOC)	Percentage of AOC Contributed	Net OPEB Obligation (NOO)
6/30/2009	\$469,492,218	37.9%	\$ 525,816,306
6/30/2010	461,942,516	37.5	814,379,040
6/30/2011	485,294,173	38.9	1,110,938,699
6/30/2012	480,545,219	37.0	1,413,736,073
6/30/2013	222,560,394	74.9	1,469,685,047
6/30/2014	196,836,134	82.6	1,503,952,786



**Annual OPEB Cost and Net OPEB Obligation**  
**for the Life Insurance Fund for Fiscal Year Ending June 30, 2014**

(a) Employer Annual Required Contribution	\$1,044,959
(b) Interest on Net OPEB Obligation	(604,962)
(c) Adjustment to Annual Required Contribution	<u>(417,164)</u>
(d) Annual OPEB Cost: (a) + (b) – (c)	\$ 857,161
(e) Employer contributions for Fiscal Year 2014	<u>1,006,091</u>
(f) Increase in Net OPEB Obligation: (d) – (e)	(\$ 148,930)
(g) Net OPEB Obligation at beginning of Fiscal Year	<u>(8,066,159)</u>
(h) Net OPEB Obligation at end of Fiscal Year: (f) + (g)	(\$8,215,089)

**TREND INFORMATION FOR THE LIFE INSURANCE FUND**

Fiscal Year Ending	Annual OPEB Cost (AOC)	Percentage of AOC Contributed	Net OPEB Obligation (NOO)
6/30/2009	\$1,416,656	385.1%	(\$7,535,867)
6/30/2010	1,817,516	108.2	(7,685,177)
6/30/2011	1,546,950	107.9	(7,807,049)
6/30/2012	1,551,065	108.6	(7,940,695)
6/30/2013	1,555,031	108.1	(8,066,159)
6/30/2014	857,161	117.4	(8,215,089)



**SCHEDULE A**

**RESULTS OF THE VALUATION AS OF JUNE 30, 2014**  
**(Dollar amounts in \$1,000's)**

	<b>Medical Insurance Fund</b>	<b>Life Insurance Fund</b>
<b>PAYROLL</b>	\$3,486,327	\$3,486,327
<b>ACTUARIAL ACCRUED LIABILITY</b>		
Present value of prospective benefits payable in respect of:		
(a) Present active members	\$1,422,834	\$ 16,331
(b) Present terminated vested members	24,301	2,034
(c) Present retired members and covered spouses	<u>1,747,554</u>	<u>78,989</u>
(d) Total actuarial accrued liability	\$3,194,689	\$ 97,354
<b>PRESENT ASSETS FOR VALUATION PURPOSES</b>	508,913	96,130
<b>UNFUNDED ACTUARIAL ACCRUED LIABILITY</b>	\$2,685,776	\$ 1,224
<b>CONTRIBUTIONS:</b>	Fiscal Year Ending June 30, 2015	Fiscal Year Ending June 30, 2017
Normal	1.79%	0.03%
Accrued Liability	<u>4.21</u>	<u>0.00</u>
Total	6.00%	0.03%
Member	2.95%	0.00%
Employer (ARC)	2.23	0.00
State (ARC)	<u>0.82</u>	<u>0.03</u>
Total	6.00%	0.03%



**SCHEDULE A**  
(continued)

**MEDICAL INSURANCE FUND  
SOLVENCY TEST**  
(Dollar amounts in millions)

Valuation Date	(1)	(2)	(3)	Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	Active Member Contributions	Retirants And Beneficiaries	Active Members (Employer Financed Portion)		(1)	(2)	(3)
6/30/2009	n/a	\$3,203.7	\$3,251.0	\$229.1	n/a	7%	0%
6/30/2010	n/a	1,948.6	1,258.2	241.2	n/a	12	0
6/30/2011	n/a	1,910.1	1,513.1	294.8	n/a	15	0
6/30/2012	n/a	2,046.7	1,547.9	338.7	n/a	17	0
6/30/2013	n/a	2,001.8	1,519.3	412.2	n/a	21	0
6/30/2014	n/a	1,771.9	1,422.8	508.9	n/a	29	0

**LIFE INSURANCE FUND  
SOLVENCY TEST**  
(Dollar amounts in millions)

Valuation Date	(1)	(2)	(3)	Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	Active Member Contributions	Retirants And Beneficiaries	Active Members (Employer Financed Portion)		(1)	(2)	(3)
6/30/2009	n/a	\$72.0	\$18.4	\$84.7	n/a	100%	69%
6/30/2010	n/a	74.4	17.7	87.9	n/a	100	76
6/30/2011	n/a	72.2	15.9	88.5	n/a	100	103
6/30/2012	n/a	75.2	16.2	92.2	n/a	100	105
6/30/2013	n/a	78.1	16.2	94.9	n/a	100	104
6/30/2014	n/a	81.0	16.3	96.1	n/a	100	93



**SCHEDULE B**

**DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS  
MEDICAL INSURANCE FUND**

**AS OF JUNE 30, 2014**

(1)	Actuarial Value of Assets Beginning of Year	\$	412,184,887
(2)	Market Value of Assets End of Year	\$	535,995,450
(3)	Market Value of Assets Beginning of Year	\$	413,665,765
(4)	Cash Flow		
	a. Contributions	\$	292,879,305
	b. Benefit Payments		237,190,550
	c. Administrative Expense		<u>1,100,133</u>
	d. Net: (4)a – (4)b – (4)c	\$	54,588,622
(5)	Investment Income		
	a. Market total: (2) – (3) – (4)d	\$	67,741,063
	b. Assumed Rate		8.00%
	c. Amount for Immediate Recognition: [ (3) x (5)b ] + [ (4)d x (5)b x 0.5 ]		<u>35,276,806</u>
	d. Amount for Phased-In Recognition: (5)a – (5)c	\$	32,464,257
(6)	Phased-In Recognition of Investment Income		
	a. Current Year: 0.20 x (5)d	\$	6,492,851
	b. First Prior Year		370,219
	c. Second Prior Year		0
	d. Third Prior Year		0
	e. Fourth Prior Year		<u>0</u>
	f. Total Recognized Investment Gain	\$	6,863,070
(7)	Actuarial Value of Assets End of Year:		
	(1) + (4)d + (5)c + (6)f	\$	508,913,385
(8)	Difference Between Market & Actuarial Values: (2) – (7)	\$	27,082,065
(9)	Rate of Return on Actuarial Value:		9.59%



**SCHEDULE B**  
**(Continued)**

**DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS**  
**LIFE INSURANCE FUND**

**AS OF JUNE 30, 2014**

(1)	Actuarial Value of Assets Beginning of Year	\$ 94,863,265
(2)	Market Value of Assets End of Year	\$ 90,822,970
(3)	Market Value of Assets Beginning of Year	\$ 89,957,358
(4)	Cash Flow	
	a. Contributions	\$ 1,006,091
	b. Benefit Payments	4,692,000
	c. Administrative Expense	<u>21,324</u>
	d. Net: (4)a – (4)b – (4)c	(\$ 3,707,233)
(5)	Investment Income	
	a. Market total: (2) – (3) – (4)d	\$ 4,572,845
	b. Assumed Rate	7.50%
	c. Amount for Immediate Recognition: [ (3) x (5)b ] + [ (4)d x (5)b x 0.5 ]	<u>6,607,781</u>
	d. Amount for Phased-In Recognition: (5)a – (5)c	(\$ 2,034,936)
(6)	Phased-In Recognition of Investment Income	
	a. Current Year: 0.20 x (5)d	(\$ 406,987)
	b. First Prior Year	(1,226,477)
	c. Second Prior Year	0
	d. Third Prior Year	0
	e. Fourth Prior Year	<u>0</u>
	f. Total Recognized Investment Gain	(\$ 1,633,464)
(7)	Actuarial Value of Assets End of Year:	
	(1) + (4)d + (5)c + (6)f	\$ 96,130,349
(8)	Difference Between Market & Actuarial Values: (2) – (7)	(\$ 5,307,379)
(9)	Rate of Return on Actuarial Value:	5.35%



**SCHEDULE C**

**MEDICAL INSURANCE FUND  
SUMMARY OF RECEIPTS AND DISBURSEMENTS  
(Market Value)**

	For the Year Ending	
	June 30, 2014	June 30, 2013
<b>Receipts for the Year</b>		
Contributions		
Members Statutory	\$ 74,329,798	\$ 58,440,844
Payment by Retired Members	<u>60,861,093</u>	<u>61,354,936</u>
Total Members	\$135,190,891	\$119,795,780
Employer/State Statutory Contributions	\$ 73,088,414	\$ 60,076,444
State Statutory – Transition Fund/KEHP	84,600,000	106,500,000
General Fund Surplus	0	0
Allotment from Pension Fund	<u>0</u>	<u>0</u>
Total Employer	\$157,688,414	\$166,576,444
Grand Total	\$292,879,305	\$286,372,224
Recovery Income	4,879,981	34,976
Medicare D Receipts	0	0
Net Investment Income	<u>67,741,063</u>	<u>30,718,836</u>
TOTAL	\$365,500,349	\$317,126,036
<b>Disbursements for the Year</b>		
Refunds to Members	\$ 0	\$ 0
Administrative Expense	1,100,133	1,275,206
Medical Insurance Expense	<u>242,070,531</u>	<u>240,931,618</u>
TOTAL	\$243,170,664	\$242,206,824
<b>Excess of Receipts over Disbursements</b>	\$122,329,685	\$ 74,919,212
<b>Reconciliation of Asset Balances</b>		
Asset Balance as of the Beginning of the Year	\$413,665,765	\$338,746,553
Excess of Receipts over Disbursements	<u>122,329,685</u>	<u>74,919,212</u>
Asset Balance as of the End of the Year	<u>\$535,995,450</u>	<u>\$413,665,765</u>



**SCHEDULE C**  
**(Continued)**

**LIFE INSURANCE FUND**  
**SUMMARY OF RECEIPTS AND DISBURSEMENTS**  
**(Market Value)**

	For the Year Ending	
	June 30, 2014	June 30, 2013
<b>Receipts for the Year</b>		
Contributions		
Members	\$ 0	\$ 0
State	<u>1,006,091</u>	<u>1,680,495</u>
Total	\$ 1,006,091	\$ 1,680,495
Net Investment Income	<u>4,572,845</u>	<u>674,760</u>
<b>TOTAL</b>	<b>\$ 5,578,936</b>	<b>\$ 2,355,255</b>
<b>Disbursements for the Year</b>		
Benefit Payments	\$ 4,692,000	\$ 4,614,718
Refunds to Members	0	0
Medical Insurance Payments	0	0
Miscellaneous, including expenses	<u>21,324</u>	<u>24,425</u>
<b>TOTAL</b>	<b>\$ 4,713,324</b>	<b>\$ 4,639,143</b>
<b>Excess of Receipts over Disbursements</b>	<b>\$ 865,612</b>	<b>(\$ 2,283,888)</b>
<b>Reconciliation of Asset Balances</b>		
Asset Balance as of the Beginning of the Year	\$89,957,358	\$92,241,246
Excess of Receipts over Disbursements	<u>865,612</u>	<u>( 2,283,888)</u>
Asset Balance as of the End of the Year	<u>\$90,822,970</u>	<u>\$89,957,358</u>



**SCHEDULE D**

**STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS**

The rates of retirement, disability, mortality, termination, and salary increases used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2010, submitted to and adopted by the Board on September 19, 2011. The rates of future participation, health care cost trend rates, and expected plan costs were determined by the actuary based on plan experience.

VALUATION DATE: June 30, 2014

DISCOUNT RATE: 8.0% per annum, compounded annually for the Medical Insurance Fund  
7.5% per annum, compounded annually for the Life Insurance Fund

HEALTH CARE COST TREND RATES: Following is a chart detailing health care trend assumptions.

Fiscal Year Ended	Annual Trend Rate		
	Medicare Part B	Under Age 65	Ages 65 and Older
2015	0.76%	7.75%	5.75%
2016	3.93	6.75	5.50
2017	5.78	6.25	5.25
2018	5.42	5.75	5.00
2019	5.63	5.25	5.00
2020	5.56	5.00	5.00
2021	5.49	5.00	5.00
2022	5.55	5.00	5.00
2023	5.39	5.00	5.00
2024	5.12	5.00	5.00
2025 and beyond	5.00	5.00	5.00

AGE RELATED MORBIDITY: For retirees ages 65 and older, per capita health care costs are adjusted to reflect expected health care cost changes related to age. The increase to the net incurred health care claims is assumed to be:

Participant Age	Annual Increase
65 – 69	3.0%
70 – 74	2.5
75 – 79	2.0
80 – 84	1.0
85 - 89	0.5
90 and over	0.0

For the retiree health care liabilities of those under age 65, the current premium charged by the Kentucky Employees' Health Plan (KEHP) is used as the base cost and is projected forward using the healthcare trend assumption. No implicit rate subsidy is calculated or recognized as the implicit rate subsidy is deemed the responsibility of the KEHP.



**SCHEDULE D  
(Continued)**

RETIREE MEDICAL PLAN COSTS: Assumed per capita health care costs were based on past experience and trended based on the assumptions. Following are charts detailing retiree per capita assumptions. These amounts include medical, drug, and administrative costs and represent the amount that KTRS pays as the full contribution amount. The amounts include medical and drug costs. An additional \$6.58 per month is paid to the Department of Employee Insurance (DEI) and is not included in the under age 65 costs listed below. For retirees ages 65 and older, the average costs shown are normalized to age 65 and then age adjusted in calculating liabilities.

Under Age 65 (KEHP) Full Costs as of January 1, 2015				
Tier Elected	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP
Single	\$ 689.28	\$ 708.56	\$ 665.40	\$ 650.92
Parent Plus	950.62	1,007.46	946.88	913.28
Couple	1,282.84	1,543.58	1,451.56	1,406.14
Family	1,432.06	1,716.92	1,615.30	1,566.20
Family C-R	795.64	851.66	800.28	777.90

Average Monthly KTRS Full Costs and Contributions			
Year	Under Age-65 (KEHP) Contributions	Ages 65 and Older (MEHP) Full Costs	Ages 65 and Older (MEHP) Contributions
CY 2004	\$293	\$274	\$274
CY 2005	412	288	288
CY 2006	461	315	315
CY 2007	458	283	283
CY 2008	484	278	278
CY 2009	545	301 <sup>1</sup>	285
CY 2010	594	373 <sup>1</sup>	342
CY 2011	626	289	289
CY 2012	622	270 <sup>2</sup>	270
CY 2013	635	294 <sup>2</sup>	290
CY 2014	679	290 <sup>2</sup>	290
CY 2015	669	240 <sup>2</sup>	240

<sup>1</sup> Under GASB 43 and 45, cost reductions for the amount of the Medicare Part D Retiree Drug Subsidy cannot be taken into account in the gross cost calculations.

<sup>2</sup> 2,105 current benefit recipients are assumed to be not eligible for premium-free Medicare Part A benefits. For these individuals, the full cost of coverage is, on average, \$581 per month. It is assumed 21% of current benefit recipients under the age of 65 who were hired prior to 4/1/1986 and left covered employment prior to 4/1/1996 will not be eligible for premium-free Medicare Part A benefits. All active members are assumed to have begun contributing to Medicare as of 4/1/1986 and are assumed eligible for premium-free Medicare Part A benefits.



**SCHEDULE D**  
**(Continued)**

**CURRENT RETIREE MEDICAL PLAN PARTICIPATION:** Actual census data and current plan elections (including waivers) provided by the System were used for those retirees currently participating in the Retiree Medical Plan. Current participants are assumed to maintain their current Retiree Medical Plan coverage until they are no longer eligible.

**ANTICIPATED RETIREE MEDICAL PLAN PARTICIPATION:** The assumed annual rates of health care plan participation for future retirees are as follows:

Years of Service	Member Participation*		
	Entered KTRS Before 7/1/2002	Entered KTRS After 6/30/2002 and Before 7/1/2008	Entered KTRS After 6/30/2008
5-9.99	23%	9%	Not Eligible
10-14.99	45	23	Not Eligible
15-19.99	68	41	41%
20-24.99	93	59	59
25-25.99	93	81	81
26-26.99	93	86	86
27 or more	93	93	93

*\* Members retiring from deferred vested status are assumed to participate at 50% of the corresponding rate listed.*

**ANTICIPATED RETIREE MEDICAL PLAN ELECTIONS:** The assumed rates of plan election for future retirees participating in the KEHP plans are provided in the following table. As the assumed plan election rates are estimates and actual results may be materially different, this assumption will need to be revised as experience evolves.

LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP
32%	51%	10%	7%

**SPOUSE COVERAGE IN RETIREE MEDICAL PLAN:** Actual census data and current plan elections were used for spouses (including beneficiaries) of current retirees. For spouses of future retirees, 20% of future retirees are assumed to cover their spouse, with females 3 years younger than males.

**DISABLED DEPENDENT CHILDREN IN RETIREE MEDICAL PLAN:** The liability associated with disabled dependent children was determined to be de minimis and was therefore excluded from this valuation.



**SCHEDULE D**  
**(Continued)**

**WITHDRAWAL ASSUMPTION:** It is assumed 30% of future vested members who terminate elect to withdraw their contributions while the remaining 70% elect to leave their contributions in the plan in order to be eligible for a benefit at their retirement date.

**PAYROLL GROWTH:** 4.00% per annum, compounded annually.

**PRICE INFLATION:** 3.50% per annum, compounded annually.

**AFFORDABLE CARE ACT (ACA):** The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the excise tax on high-value health insurance plans beginning in 2018 (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by the assumed rate of health care inflation (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the Retiree Medical Plan's liability will be required.

**ASSET VALUATION METHOD:** Five-year market related actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the ultimate assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value. The ultimate assumed valuation rate of return is assumed to be 8.00% for the Medical Insurance Fund and 7.50% for the Life Insurance Fund.

**ACTUARIAL COST METHOD:** The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future, of each active member's expected benefit at retirement or death is determined, based on his/her age, service, and gender. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability or survivor's benefit. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries and deferred vested members to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.

The employer contributions required to support the benefits of the System are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his/her anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his/her behalf.

The unfunded accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.



**SCHEDULE D  
(Continued)**

SEPARATIONS FROM SERVICE: Representative values of the assumed annual rates of salary increases, death, disability, withdrawal, service retirement and early retirement are as follows:

MALES								
Age	Annual Rate of							
	SALARY*	DEATH	DISABILITY	WITHDRAWAL			RETIREMENT	
				Years of Service			Before 27 Years of Service	After 27 Years of Service**
				0 – 4	5 – 9	10+		
20	8.10%	0.012%	0.01%	9.00%				
25	7.20	0.015	0.01	9.00	3.00%			
30	6.20	0.020	0.02	9.00	3.00	3.00%		
35	5.50	0.035	0.05	10.00	3.25	1.75		
40	5.00	0.046	0.09	10.00	4.00	1.40		
45	4.60	0.058	0.18	11.00	4.00	1.50		17.0%
50	4.50	0.074	0.33	9.00	4.00	2.00		17.0
55	4.30	0.124	0.55	12.00	3.50	2.50	5.5%	35.0
60	4.20	0.244	0.70	12.00	3.50	2.50	13.0	24.0
62	4.10	0.324	0.70	12.00	3.50	2.50	15.0	25.0
65	4.00	0.480	0.70	12.00	3.50	2.50	21.0	26.0
70	4.00	0.821	0.70	0.00	0.00	0.00	100.0	100.0

  

FEMALES								
Age	Annual Rate of							
	SALARY*	DEATH	DISABILITY	WITHDRAWAL			RETIREMENT	
				Years of Service			Before 27 Years of Service	After 27 Years of Service**
				0 – 4	5 – 9	10+		
20	8.10%	0.007%	0.01%	7.00%				
25	7.20	0.008	0.02	8.50	4.00%			
30	6.20	0.010	0.04	9.00	4.00	1.65%		
35	5.50	0.017	0.08	9.00	3.75	1.85		
40	5.00	0.024	0.14	8.50	3.25	1.50		
45	4.60	0.037	0.32	7.50	3.25	1.25		15.0%
50	4.50	0.055	0.42	9.50	3.50	1.75		15.0
55	4.30	0.103	0.56	11.00	4.00	2.00	6.0%	35.0
60	4.20	0.201	0.85	11.00	4.00	2.00	14.0	30.0
62	4.10	0.263	0.85	11.00	4.00	2.00	12.5	25.0
65	4.00	0.390	0.85	11.00	4.00	2.00	22.0	30.0
70	4.00	0.672	0.85	0.00	0.00	0.00	100.0	100.0

\* Includes inflation at 3.5% per annum.

\*\* Plus 10% in year when first eligible for unreduced retirement with 27 years of service.



**SCHEDULE D**  
**(Continued)**

DEATHS AFTER RETIREMENT: The RP-2000 Combined Mortality Table projected to 2020 using scale AA (set back one year for females) is used for death after service retirement and beneficiaries. The RP-2000 Disabled Mortality Table (set back seven years for males and set forward five years for females) is used for death after disability retirement. Mortality improvement is anticipated under these assumptions as recent mortality experience shows actual deaths are approximately 4% greater for healthy lives and 5% greater for disabled lives than expected under the selected tables. Representative values of the assumed annual rates of death after service retirement and after disability retirement are shown below:

Age	Annual Rate of Death After			
	Service Retirement		Disability Retirement	
	Male	Female	Male	Female
45	0.1161%	0.0745%	2.2571%	1.1535%
50	0.1487	0.1100	2.2571	1.6544
55	0.2469	0.2064	2.6404	2.1839
60	0.4887	0.4017	3.2859	2.8026
65	0.9607	0.7797	3.9334	3.7635
70	1.6413	1.3443	4.6584	5.2230
75	2.8538	2.1680	5.6909	7.2312
80	5.2647	3.6066	7.3292	10.0203
85	9.6240	6.1634	9.7640	14.0049
90	16.9280	11.2205	12.8343	19.4509
95	25.6992	17.5624	16.2186	23.7467



**SCHEDULE E**

**SUMMARY OF MAIN PLAN PROVISIONS  
AS INTERPRETED FOR VALUATION PURPOSES**

**ELIGIBILITY FOR ACCESS TO RETIREE MEDICAL PLAN COVERAGE:**

**Service Retirement:** For employees hired prior to July 1, 2008, Retiree Medical Plan coverage eligibility is attained when an employee retires, which is possible after the completion of 27 years of service or attainment of age 55 and 5 years of service. For employees hired on or after July 1, 2008, employees may retire after the completion of 27 years of service, the attainment of age 55 and 10 years of service, or the attainment of age 60 and 5 years of service, but must complete a minimum of 15 years of service to be eligible for Retiree Medical Plan coverage.

**Disability Retirement:** Disabled employees hired prior to July 1, 2008 with at least 5 years of service, who are totally and permanently incapable of being employed as a teacher, are eligible for Retiree Medical Plan coverage. Disabled employees hired after July 1, 2008 must have 15 years of service to be eligible for Retiree Medical Plan coverage.

**Survivors:** Spouses of employees who die in service while eligible to retire, as well as survivors of service and disabled retirees, are eligible for Retiree Medical Plan coverage.

**Termination:** For employees hired prior to July 1, 2008 and who terminated with at least 5 years of service, Retiree Medical Plan coverage eligibility is attained at age 60. For employees hired on or after July 1, 2008 and who terminated with at least 15 years of service, Retiree Medical Plan coverage eligibility is attained at age 60.

**COVERED MEMBER RETIREE MEDICAL PLAN CONTRIBUTIONS:**

**Under Age 65 Retiree Shared Responsibility Contribution:** Effective July 1, 2010, retirees under the age of 65 began a three-year phase-in of the Shared Responsibility Contribution. This contribution reduces the applicable amount of the full contribution provided by the System to retirees, by adjusting the Shared Responsibility Contribution amount by 100% less the appropriate percentage from the Retiree Percentage Contribution table on the following page. Effective July 1, 2012, the full Shared Responsibility Contribution equals the Standard Medicare Part B premium paid by retirees ages 65 and older.

Under Age 65 Shared Responsibility Contribution Timeline			
Effective Date	Medicare Part B Monthly Cost	Formula	Shared Responsibility Contribution
July 1, 2010	\$110.50	(1/3 x \$110.50)	\$ 37.00
January 1, 2011	115.40	(1/3 x 115.40)	39.00
July 1, 2011	115.40	(2/3 x 115.40)	77.00
January 1, 2012	99.90	(2/3 x 99.90)	66.00
July 1, 2012	99.90	99.90	99.90
January 1, 2013	104.90	104.90	104.90
January 1, 2014	104.90	104.90	104.90
January 1, 2015	104.90	104.90	104.90



**SCHEDULE E**  
**(Continued)**

**COVERED MEMBER RETIREE MEDICAL PLAN CONTRIBUTIONS (CONTINUED):**

**Retiree Years of Service Percentage Contribution:** Retirees contribute the following percentages based on years of service at retirement, which are then applied to the Retiree Contribution Rate Basis:

Retiree Percentage Contribution				
Year of Service	Entered KTRS Before 7/1/2002		Entered KTRS After 6/30/2002 and Before 7/1/2008	Entered KTRS After 6/30/2008
	Age 65 or Older and Covered Before 1/1/2005	Age 65 After or Covered After 12/31/2004		
5 – 9.99	30%	75%	90%	Not Eligible
10 – 14.99	20	50	75	Not Eligible
15 – 19.99	10	25	55	55%
20 – 24.99	0	0	35	35
25 – 25.99	0	0	10	10
26 – 26.99	0	0	5	5
27 or more	0	0	0	0

Retiree Contribution Rate Basis Effective January 1, 2015					
Tier Elected	Under Age 65 (KEHP)				Ages-65 and Older (MEHP)
	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP	
Single	\$641.30	\$628.58	\$617.42	\$637.94	\$240.00
Parent Plus	641.30	641.30	641.30	641.30	240.00
Couple	641.30	641.30	641.30	641.30	240.00
Family	641.30	641.30	641.30	641.30	240.00
Family C-R	641.30	641.30	641.30	641.30	240.00



**SCHEDULE E**  
**(Continued)**

**COVERED MEMBER MEDICAL PLAN CONTRIBUTIONS (CONTINUED):**

**Under Age 65 Retiree Plan Cost Contribution:** A contribution according to the table below is required to be paid by retirees under the age of 65 based upon the plan elected:

<b>Under Age 65 Plan Cost Contribution*</b> Effective January 1, 2015				
<b>Tier Elected</b>	<b>LivingWell CDHP</b>	<b>LivingWell PPO</b>	<b>Standard PPO</b>	<b>Standard CDHP</b>
Single	\$ 47.98	\$ 79.98	\$ 47.98	\$ 12.98
Parent Plus**	309.32	366.16	305.58	271.98
Couple**	641.54	902.28	810.26	764.84
Family**	790.76	1,075.62	974.00	924.90
Family C-R**	154.34	210.36	158.98	136.60

\* Does not include the additional contribution required to be paid by retirees under the age of 65 who smoke (\$40 for Single or Family Cross-Reference, and \$80 for Parent Plus, Couple or Family).

\*\* Contribution for Parent Plus, Couple, Family and Family Cross-Reference tiers is offset by the State Under Age 65 Spouse/Dependent Subsidy.

The Under Age 65 Plan Cost Contribution is reduced by subtracting the State Under Age 65 Spouse/Dependent Subsidy multiplied by 100% less the appropriate percentage in the Retiree Percentage Contribution table on the previous page, from the Under Age 65 Plan Cost Contribution.

<b>State Under Age 65 Spouse/Dependent Subsidy</b> Effective January 1, 2015				
<b>Tier Elected</b>	<b>LivingWell CDHP</b>	<b>LivingWell PPO</b>	<b>Standard PPO</b>	<b>Standard CDHP</b>
Parent Plus	\$186.34	\$138.18	\$182.60	\$212.00
Couple	353.56	389.30	522.28	514.86
Family	452.78	432.64	636.02	624.92
Family C-R	76.36	57.38	81.00	108.62

**Spouse Contributions:** 100% of the full cost for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State. Spouses of post-65 retirees, as well as surviving spouses of deceased retirees on or after July 1, 2002, pay 100% of the full contribution. Spouses of active members who died while eligible to retire prior to July 1, 2002, are provided the same subsidy by KTRS that would have been provided to the retiree for the lifetime of the spouse, or until remarriage. Spouses of active members who die while eligible to retire July 1, 2002, and later, pay 100% of the full contribution.

<b>Surviving Spouse Contribution</b> Effective January 1, 2015					
<b>Tier Elected by Surviving Spouse</b>	<b>Under Age 65 (KEHP)</b>				<b>Ages 65 and Older (MEHP)</b>
	<b>LivingWell CDHP</b>	<b>LivingWell PPO</b>	<b>Standard PPO</b>	<b>Standard CDHP</b>	
Single	\$695.86	\$ 715.14	\$671.98	\$657.50	\$ 240.00
Parent Plus	957.20	1,014.04	953.46	919.86	n/a



**SCHEDULE E**  
**(Continued)**

**SYSTEM RETIREE MEDICAL PLAN CONTRIBUTIONS:** The System Contribution Rate Basis is determined annually by KTRS; and the full cost is projected based on historical claims data. For retirees, the following percentages are based on years of service at retirement and are then applied to the System Contribution Rate Basis:

Percentage of System Contribution Rate Provided to Retirees				
Year of Service	Entered KTRS Before 7/1/2002		Entered KTRS After 6/30/2002 and Before 7/1/2008	Entered KTRS After 6/30/2008
	Age 65 or Older and Covered Before 1/1/2005	Age 65 After or Covered After 12/31/2004		
5 – 9.99	70%	25%	10%	Not Eligible
10 – 14.99	80	50	25	Not Eligible
15 – 19.99	90	75	45	45%
20 – 24.99	100	100	65	65
25 – 25.99	100	100	90	90
26 – 26.99	100	100	95	95
27 or more	100	100	100	100

System Contribution Rate Basis Effective January 1, 2015					
Tier Elected	Under Age 65 (KEHP)				Ages-65 and Older (MEHP)
	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP	
Single	\$641.30	\$628.58	\$617.42	\$637.94	\$240.00
Parent Plus	641.30	641.30	641.30	641.30	240.00
Couple	641.30	641.30	641.30	641.30	240.00
Family	641.30	641.30	641.30	641.30	240.00
Family C-R	641.30	641.30	641.30	641.30	240.00

**ACTIVE MEMBER RETIREE MEDICAL PLAN CONTRIBUTIONS:** Actively employed members make payroll contributions to the Medical Insurance Fund based upon the following schedule:

Active Member Percentage of Payroll Contribution Made to Medical Insurance Fund						
Fiscal Year Ending	University Employees		School District Employees (Non-Federal)		Other Employees	
	Hired Before 7/1/2008	Hired On or After 7/1/2008	Hired Before 7/1/2008	Hired On or After 7/1/2008	Hired Before 7/1/2008	Hired On or After 7/1/2008
2015	2.270	2.270	3.000	3.000	3.000	3.000
2016 and Later	2.775	2.775	3.750	3.750	3.750	3.750



**SCHEDULE E**  
**(Continued)**

**LIFE INSURANCE PLAN BENEFITS:**

(1) Effective July 1, 2000, the Teachers' Retirement System shall:

- (a) Provide a life insurance benefit in a minimum amount of five thousand dollars (\$5,000) for its members who are retired for service or disability. This life insurance benefit shall be payable upon the death of a member retired for service or disability to the member's estate or to a party designated by the member on a form prescribed by the retirement system; and
- (b) Provide a life insurance benefit in a minimum amount of two thousand dollars (\$2,000) for its active contributing members. This life insurance benefit shall be payable upon the death of an active contributing member to the member's estate or to a party designated by the member on a form prescribed by the retirement system.

**Note:** Members employed on a substitute or part-time basis and working at least 69% of a full contract year in a single fiscal year will be eligible for a life insurance benefit for the balance of the fiscal year or the immediately succeeding fiscal year under certain conditions. For non-vested members employed on a substitute or part-time basis, the life insurance benefit is provided if death occurs as the result of a physical injury on the job. For vested members employed on a substitute or part-time basis, death does not have to be the result of a physical injury on the job for life insurance benefits to be provided.



**SCHEDULE F**

**TABLE 1  
ACTIVE MEMBER AGE AND SERVICE TABLE AS OF JUNE 30, 2014**

Attained Age	Completed Years of Service								
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	>= 35	Total
24 & under	1,203	1							1,204
Total Pay	30,289,473	16,724							30,306,197
Avg. Pay	25,178	16,724							25,171
25 to 29	5,580	1,434							7,014
Total Pay	193,970,612	67,358,025							261,328,637
Avg. Pay	34,762	46,972							37,258
30 to 34	2,781	5,186	1,217						9,184
Total Pay	92,513,906	256,970,385	66,796,986						416,281,277
Avg. Pay	33,266	49,551	54,887						45,327
35 to 39	1,898	2,496	4,429	863	1				9,687
Total Pay	56,555,071	124,293,536	256,631,937	54,675,650	53,340				492,209,534
Avg. Pay	29,797	49,797	57,944	63,355	53,340				50,811
40 to 44	5,052	1,716	2,366	4,050	747	16	3		13,950
Total Pay	80,379,772	83,794,962	135,195,300	259,149,673	49,078,966	163,529	4,440		607,766,642
Avg. Pay	15,910	48,832	57,141	63,988	65,701	10,221	1,480		43,568
45 to 49	1,458	1,205	1,432	1,995	2,861	691	4		9,646
Total Pay	33,919,137	60,198,868	82,097,312	126,497,133	194,503,113	48,070,745	172,161		545,458,469
Avg. Pay	23,264	49,958	57,331	63,407	67,984	69,567	43,040		56,548
50 to 54	1,071	794	1,103	1,293	1,454	1,789	327	3	7,834
Total Pay	23,600,498	40,049,425	63,071,897	81,900,405	99,886,590	128,070,681	23,619,195	138,015	460,336,706
Avg. Pay	22,036	50,440	57,182	63,341	68,698	71,588	72,230	46,005	58,761
55 to 59	1,476	467	746	1,030	1,109	919	451	66	6,264
Total Pay	23,836,597	22,197,101	43,680,065	66,568,849	75,368,014	69,124,953	36,616,202	4,867,334	342,259,115
Avg. Pay	16,149	47,531	58,552	64,630	67,960	75,218	81,189	73,747	54,639
60 to 64	1,996	463	446	655	626	534	138	116	4,974
Total Pay	26,390,926	18,546,024	26,950,845	42,661,444	45,836,673	41,747,171	10,565,625	10,334,994	223,033,702
Avg. Pay	13,222	40,056	60,428	65,132	73,222	78,178	76,563	89,095	44,840
65 & over	2,062	532	213	254	220	203	69	97	3,650
Total Pay	18,463,630	14,329,380	11,856,787	16,552,947	16,366,985	15,093,672	6,003,364	8,679,755	107,346,520
Avg. Pay	8,954	26,935	55,666	65,169	74,395	74,353	87,005	89,482	29,410
<b>Total</b>	<b>24,577</b>	<b>14,294</b>	<b>11,952</b>	<b>10,140</b>	<b>7,018</b>	<b>4,152</b>	<b>992</b>	<b>282</b>	<b>73,407</b>
<b>Total Pay</b>	<b>579,919,622</b>	<b>687,754,430</b>	<b>686,281,129</b>	<b>648,006,101</b>	<b>481,093,681</b>	<b>302,270,751</b>	<b>76,980,987</b>	<b>24,020,098</b>	<b>3,486,326,799</b>
<b>Avg. Pay</b>	<b>23,596</b>	<b>48,115</b>	<b>57,420</b>	<b>63,906</b>	<b>68,551</b>	<b>72,801</b>	<b>77,602</b>	<b>85,178</b>	<b>47,493</b>

Average Age: 44.1

Average Service: 10.7



**SCHEDULE F**  
**(Continued)**

**TABLE 2**  
**SCHEDULE OF TOTAL ACTIVE MEMBER VALUATION DATA**

Valuation Date	Number	Annual Payroll	Annual Average Pay	Percentage Increase in Average Pay
6/30/2014	73,407	\$3,486,326,799	\$47,493	2.12%
6/30/2013	74,831	3,480,066,406	46,506	1.51
6/30/2012	75,951	3,479,567,004	45,813	1.33
6/30/2011	76,349	3,451,756,288	45,210	3.97
6/30/2010	76,387	3,321,614,223	43,484	1.51
6/30/2009	75,937	3,253,076,600	42,839	1.43

**TABLE 3**  
**ELIGIBLE DEFERRED VESTED MEMBERS AS OF JUNE 30, 2014**  
**MALE AND FEMALE DEMOGRAPHIC BREAKDOWN**

Attained Age	Medical Insurance Fund			Life Insurance Fund		
	Number of		Total Number	Number of		Total Number
	Males	Females		Males	Females	
Under 30	1	13	14	3	17	20
30-34	65	352	417	52	335	387
35-39	158	549	707	122	476	598
40-44	220	648	868	178	542	720
45-49	194	670	864	151	545	696
50-54	209	647	856	164	515	679
55-59	187	581	768	157	450	607
60 & Over	219	475	694	103	303	406
<b>Total</b>	<b>1,253</b>	<b>3,935</b>	<b>5,188</b>	<b>930</b>	<b>3,183</b>	<b>4,113</b>



**SCHEDULE F**  
**(Continued)**

**TABLE 4**  
**ALL RETIREES AND SPOUSES RECEIVING HEALTH CARE BENEFITS AS OF JUNE 30, 2014**  
**MALE AND FEMALE DEMOGRAPHIC BREAKDOWN**

Attained Age	Number of		Total Number
	Males	Females	
Under 40	3	24	27
40-44	19	57	76
45-49	63	211	274
50-54	371	975	1,346
55-59	1,348	3,236	4,584
60-64	3,110	6,736	9,846
65-69	3,615	6,918	10,533
70-74	2,720	4,344	7,064
75-79	1,843	2,704	4,547
80-84	1,185	1,865	3,050
85-89	625	1,240	1,865
90-94	244	579	823
95-99	47	170	217
100	3	24	27
101	1	6	7
102	1	6	7
103	0	9	9
104	0	3	3
105 & Over	0	1	1
<b>Total</b>	<b>15,198</b>	<b>29,108</b>	<b>44,306</b>



**SCHEDULE F  
(Continued)**

**TABLE 5  
SCHEDULE OF RETIRANTS, BENEFICIARIES AND SURVIVORS ADDED TO AND REMOVED FROM ROLLS\***

Medical Insurance Fund									
Fiscal Year Ending June 30	Number of Members Added to Rolls	Number of Spouses** Added to Rolls	Total Number Added to Rolls	Number of Members Removed from Rolls	Number of Spouses** Removed from Rolls	Total Number Removed from Rolls	Number of Members on Rolls at the End of the Year	Number of Spouses** on Rolls at the End of the Year	Total Number on Rolls at the End of the Year
2009	1,777	640	2,417	887	510	1,397	33,481	6,808	40,289
2010	1,710	555	2,265	876	529	1,405	34,315	6,834	41,149
2011	1,770	629	2,399	1,052	541	1,593	35,033	6,922	41,955
2012	1,996	702	2,698	1,029	616	1,645	36,000	7,008	43,008
2013	1,853	664	2,517	1,076	619	1,695	36,777	7,053	43,830
2014	1,663	638	2,301	1,165	660	1,825	37,275	7,031	44,306

\*Reflects members, spouses, and beneficiaries participating in a health care plan.

\*\*Includes spouses, beneficiaries, and surviving spouses.

**TABLE 6  
SCHEDULE OF RETIRANTS, BENEFICIARIES AND SURVIVORS ADDED TO AND REMOVED FROM ROLLS\***

Life Insurance Fund								
Fiscal Year Ending June 30	Number Added to Rolls	Life Insurance Benefit (\$1,000's)	Number Removed from Rolls	Life Insurance Benefit (\$1,000's)	Number on Rolls at the End of the Year	Life Insurance Benefit (\$1,000's)	Increase in Life Insurance Benefit	Average Life Insurance Benefit
2009	1,949	\$9,745	769	\$3,845	38,958	\$194,790	3.12	5,000
2010	1,799	8,995	806	4,030	39,951	199,755	2.55	5,000
2011	2,025	10,125	858	4,290	41,118	205,590	2.92	5,000
2012	2,364	11,820	880	4,400	42,602	213,010	3.61	5,000
2013	2,195	10,975	952	4,760	43,845	219,225	2.92	5,000
2014	1,964	9,820	954	4,770	44,855	224,275	2.30	5,000

\*The life insurance benefit is payable upon the death of only members retired for service or disability. Numbers do not include life insurance benefits payable upon the death of an active contributing member.